

ENDOVue 24 SURGICAL DISPLAY

High-Definition

EndoVue

USER MANUAL

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CAUTION

This symbol alerts the user that important literature concerning the operation of this unit has been included. Therefore, it should be read carefully in order to avoid potential problems.



This symbol warns user that un-insulated voltage within the unit may have sufficient magnitude to cause electrical shock. Therefore, it is dangerous to make contact with any part inside the unit. To reduce the risk of electric shock, **DO NOT** remove cover (or back). **There are no user serviceable parts inside.** Refer servicing to qualified service personnel.

To prevent fire or shock hazards, do not expose this unit to rain or moisture. Also, do not use this unit's polarized plug with an extension cord receptacle or other outlets unless the prongs can be fully inserted. The display is designed to meet the medical safety requirements for a patient vicinity device. This device **may not** be used in connection with life support equipment.

**Underwriters Laboratories (UL) Classification:****UL Safety Compliance:**

This LCD monitor is U.L. Classified WITH RESPECT TO ELECTRIC SHOCK, FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL 60601-1/CAN/CSA C22.2 NO. 601.1.

**EEC Safety Compliance:**

This display unit meets the requirements of EN-60601-1 so as to conform to the Medical Device Directive 93/42/EEC (general safety information).

This monitor complies to the above standards **only** when used with the supplied medical grade power supply.

Power Supply: SL Power Electronic Corp MW155RA2400F02

AC Input: 100 to 240 Volts at 50 to 60 Hz.

DC Output: 24 volts

Power Cord: Use a hospital grade power cord with the correct plug for your power source.

The monitors should be powered from a center tapped circuit when used in the US at voltages over 120 volts. Monitor is intended for continuous operation.

This display is energized from an external electrical power source for class 1 equipment. It is the responsibility of the installer to test the display's earth ground to verify that it complies with the hospital, local and national impedance requirements.

A ground post, located on the back of the display, may be used for the purpose of grounding the display's chassis. Any such ground must be installed in accordance with applicable electrical codes. The ground post is shown on the mechanical drawing found on page 2.

Recycling:

Follow local governing ordinances and recycling plans regarding the recycling or disposal of this equipment.

Declarations of Conformity

FCC and Council Directives of European Standards:

This device complies with Part 15 of FCC rules and 93/42/EEC of the Council Directives of European Standards. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable results.

1. Use the attached specified cables with the color monitor so as not to interfere with radio and television reception. Use of other cable and adapters may cause interference with other electronic equipment.
2. This equipment has been tested and found to comply with the limits pursuant to FCC part 15 and CISPR 11. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

IEC:

This equipment has been tested and found to comply with the limits for medical devices to the IEC 60601-1-2:2001. These limits are designed to provide reasonable protection against harmful interference in a typical medical installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to other devices in the vicinity.

FCC, Council Directives of European Standards and IEC:

There is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult your dealer or an experienced radio/TV technician for help.

Accessory equipment connected to this monitor must be certified according to the respective IEC Standards (i.e., IEC 60950-1 for data processing equipment and IEC 60601-1 for medical equipment). Furthermore, all configurations shall comply with the system standard, IEC 60601-1-1. Anyone who connects additional equipment to the signal input part or signal output part configures a medical system, and is therefore responsible that the system complies with the requirements of system standard IEC 60601-1-1. Whoever is responsible for securing the monitor to a system needs to insure that the mounting equipment used with this display complies to IEC standard 60601-1. If in doubt, consult the technical services department or your local representative.

Legal Statement

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NDS neither assumes nor authorizes any person to assume for it any other liabilities in conjunction with and/or related to the sale and/or use of its products. To ensure proper use, handling and care of NDS products, customers should consult the product specific literature, instruction manual, and/or labeling included with the product or otherwise available.

Customers are cautioned that system configuration, software, the application, customer data and operator control of the system, among other factors, affect the product's performance. While NDS products are considered to be compatible with many systems, specific functional implementation by customers may vary. Therefore, suitability of a product for a specific purpose or application must be determined by the consumer and is not warranted by NDS.

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About This Manual

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This manual is designed to assist the user with proper installation, setup and operation of the EndoVue LCD display. Depending on the model and options that were purchased, some of the features and options in this manual may not apply to the display you are using.

A black numbered tab on the side of the page denotes the beginning of a section.

The functional descriptions in this manual are representative of:

Part Numbers: 90K0001 (Except U.S. A. and Canada) and 90K0004 (U.S. A. and Canada only)

Firmware BIOS: 58M0001, A06 Version and later.

Note: This BIOS supports both High Definition SDI (HD SDI) and Standard Definition SDI (SD SDI).

Manual Part Number: 60G0410 Rev C

Intended Use and Contraindications

Intended Use:

This monitor is intended for use in a medical environment to display high quality video and graphic images .

Contraindications:

The monitor may not be used in the presence of flammable anesthetics mixture with air, oxygen or nitrous oxide.

For mission critical applications, we strongly recommend that a replacement unit be immediately available.

Quick Startup

Powering On The Unit:

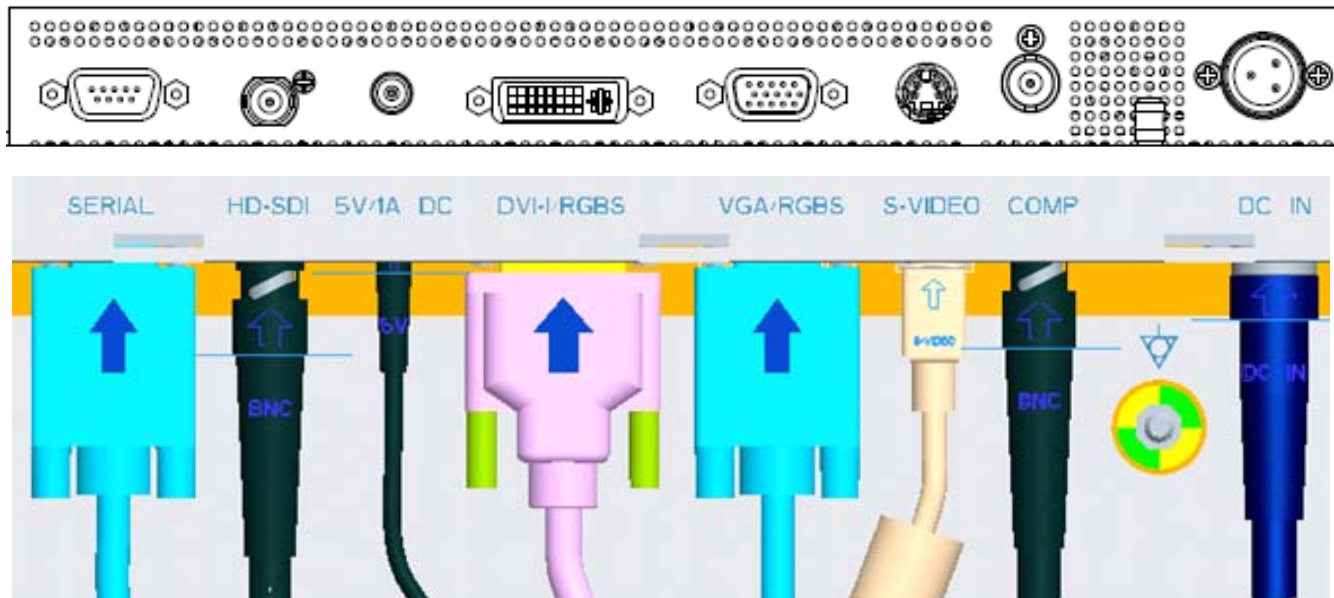
Connect the power supply to the display via the power plug. Plug in the AC adapter. Connect a video source to the display. Apply power to the peripheral device, then to the display. The power switch location is shown on page 13. The NDS logo is displayed, followed shortly by video.

The electronics, designed by NDS, incorporates proprietary SmartSync™ technology which at initialization, examines the incoming signal and automatically displays the video image in its proper format. This eliminates adjustments for most video sources. To fine tune the image, please refer to "Image Adjustments" on page 3.

First time users and initial test:

Visually, Flat-Panel (LCD) images will look crisper than those of a traditional CRT. For the same reason, live video may appear a little blocky. Users not familiar with the image differences should familiarize themselves before utilization in a critical application and determine its usability. It is recommended that first time users view the display next to a CRT to familiarize themselves with any subtle differences in viewing quality.

Connector Panels



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Notes

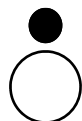
1. DC IN power supply cord shall be reliably fixed and not be removable without the use of a TOOL.
2. The 5V/1A DC output is protected Auxiliary connection. See page 15 for details.

Electrical Symbols



Equipotentiality: connector to other equipment (earth equipotential)

This symbol appears next to the display's Potential Equalization Conductor. (ground post)



Open (Off) Switch:

This symbol appears on the open, or off, side of the display's rocker switch.



Closed (On) Switch:

This symbol appears on the closed, or on, side of the display's rocker switch.



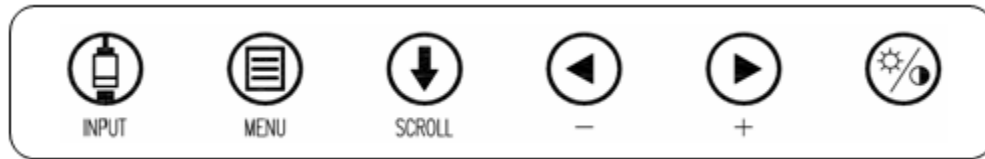
Alternating Current



Direct Current

Control

The display is controlled via a 6 button keypad. The keypad, located on the bottom front of the display, allows the user to make adjustments to various display parameters using the On Screen Menus (OSM) system.



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Image Adjustments

Adjust Brightness



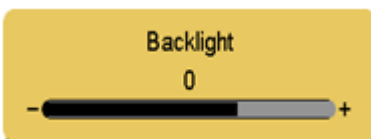
Press the Brightness / Contrast button to display the Brightness control. Press the ◀ or ▶ button to increase or decrease brightness. Setting the brightness too high or too low will decrease the amount of visible grayscales.

Adjust Contrast



Press the Brightness / Contrast button twice to display the Contrast control. Press the ◀ or ▶ button to adjust the contrast. Setting the contrast too high or too low causes loss of some grayscales. Color saturation may appear incorrect.

Adjust Backlight



Press the Brightness / Contrast button three times to display the Backlight control. Press the ◀ or ▶ button to set the backlighting.

Note: Lowering the backlight level will increase the backlight lifetime.

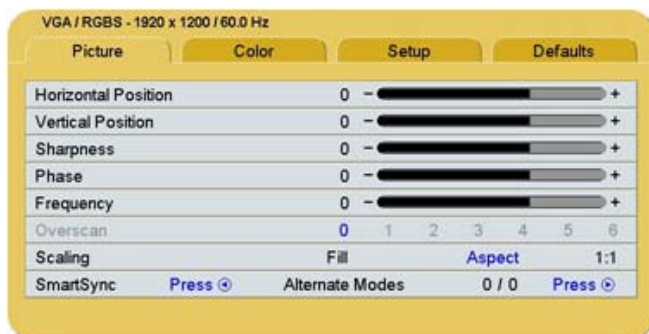
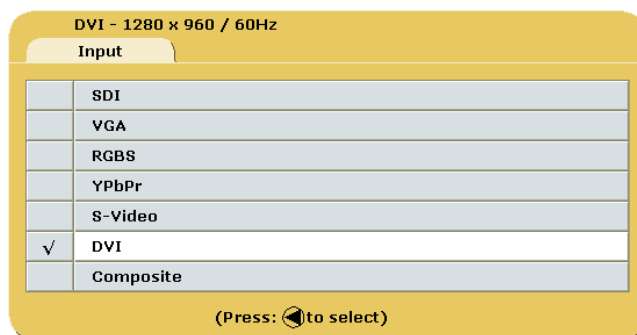
Menu Systems Overview

Press the MENU button once to open the Menu System. The current video input and its resolution are shown in the Display Mode tab on the top right of the menu. The Menu System opens with Picture menu displayed. Press the ◀ or ▶ button to select the menu you want to work with, then press the SCROLL button to select the parameter. Press the ◀ or ▶ button to set the parameter to the desired value. Press the MENU button to save your changes and close the Menu System.

Notes:

1. All parameter names change to the language selected in the Setup Menu.
2. Grayed out parameters are not accessible.

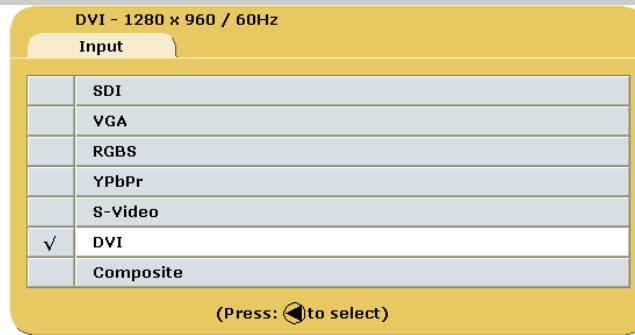
5



Language List		
English	Português	Polski
Deutsch	Norsk	한국어
Français	Dansk	日本語
Italiano	Suomi	简体中文
Svensk	Türkçe	繁體中文
Español	Ελληνικά	
Nederlands	Русский	

Video Source

Inputs Menu



When the display is powered on Auto Source Select looks at the previously selected video source first. If a signal is present it is displayed, otherwise Auto Source Select starts scanning the inputs for a signal.

To switch to a different input source, press the INPUT button to open the input menu. The Input menu shows: **selected** to the right of the active input. Press the SCROLL button to highlight the desired input. Finally, press the ◀ button to select it.

Setting Up the Display

SDI Picture Menu

SDI - 1920 x 1080p / 30.0 Hz

Picture	Color	Setup	Defaults
Horizontal Position	0	-	+
Vertical Position	0	-	+
Sharpness	0	-	+
Overscan	0	1 2 3 4 5 6	
Video Format	Auto	NTSC	PAL

S-Video Picture Menu

S-Video - 720 x 480i / 60.0 Hz

Picture	Color	Setup	Defaults
Horizontal Position	0	-	+
Vertical Position	0	-	+
Sharpness	0	-	+
Overscan	0	1 2 3 4 5 6	
Video Format	Auto	NTSC	PAL

Composite Picture Menu

Composite - 720 x 480i / 60.0 Hz

Picture	Color	Setup	Defaults
Horizontal Position	0	-	+
Vertical Position	0	-	+
Sharpness	0	-	+
Overscan	0	1 2 3 4 5 6	
Video Format	Auto	NTSC	PAL

Horizontal Position

Moves the image to the left or right. Press ◀ or ▶ to horizontally center the image.

Vertical Position

Moves the image up or down. Press ◀ or ▶ to vertically center the image.

Sharpness

Press ◀ or ▶ to adjust the sharpness (focus) of the displayed image.

Overscan (Video)

This parameter is enabled when the input is video (camera) data.

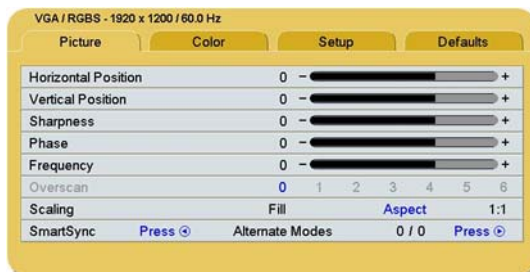
0 = The image is displayed at a size that fills the screen without losing any video information. The image presented to the display may include black bars top and bottom or left and right.

1, 2, 3, 4, 5 or 6 = The image is linearly enlarged, while remaining centered, in incremental steps. As the image becomes larger video information will be lost from the top and bottom and / or left and right. Select using ◀ or ▶ buttons.

Video Format

Auto = Automatically sets the unit to the format of the connected video source. **NTSC** = Sets the unit to accept NTSC video. **PAL** = Sets the unit to accept PAL video. Select using ◀ or ▶ buttons.

VGA / RGBS Picture Menu



YPbPr Picture Menu



Horizontal Position

Moves the image to the left or right. Press ◀ or ▶ to horizontally center the image.

Vertical Position

Moves the image up or down. Press ◀ or ▶ to vertically center the image.

Sharpness

Press ◀ or ▶ to adjust the sharpness (focus) of the displayed image. **Note:** When the VGA input is active Sharpness cannot be adjusted when the display is operating at native resolution.

Phase

Press ◀ or ▶ to adjust the phase of the display's pixel clock.

Frequency

Adjusts the frequency of the display's pixel clock. With Scaling set to **Fill** adjust until image just fills the screen horizontally. Press ◀ or ▶ to adjust the frequency of the display's pixel clock.

Overscan (Video)

This parameter is enabled when the input is video (camera) data.

0 = The image is displayed at a size that fills the screen without losing any video information. The image presented to the display may include black bars top and bottom or left and right.

1, 2, 3, 4, 5 or 6 = The image is linearly enlarged, while remaining centered, in incremental steps. As the image becomes larger video information will be lost from the top and bottom and / or left and right. Select using ◀ or ▶ buttons.

Scaling (Graphics)

This parameter is enabled when the input is graphics (computer) data.

Fill = Expands the video image to fill the entire screen. The aspect ratio may not be accurately displayed.

Aspect = Expands the video image until its largest dimension fills the screen. Image may be displayed with black bars on the top and bottom or the left and right. **1:1** = Displays the video data in its native size and aspect ratio. Image may be displayed with black bars on the top and bottom and on the left and right. Select using ◀ or ▶ buttons.

SmartSync / Alternate Modes

On initialization NDS' proprietary SmartSync technology examines the incoming signal and automatically displays the video image in its proper format. To run SmartSync select the SmartSync / Alternate Modes parameter and press the ◀ button. An Alternate Mode may be selected by pressing the ▶ button.

The Alternate Mode (format) parameter has two arguments X and Y. The left (X) argument is the current mode and the right (Y) is the number of modes available. The mode (format) and / or Frequency changes each time the ▶ button is pressed. When the mode count reaches its maximum the next ▶ button press returns the mode count to 1.

DVI Digital Picture Menu



Overscan (Video)

This parameter is enabled when the input is video (camera) data.

0 = The image is displayed at a size that fills the screen without losing any video information. The image presented to the display may include black bars top and bottom or left and right.

1, 2, 3, 4, 5 or 6 = The image is linearly enlarged, while remaining centered, in incremental steps. As the image becomes larger video information will be lost from the top and bottom and / or left and right. Select using ◀ or ▶ buttons.

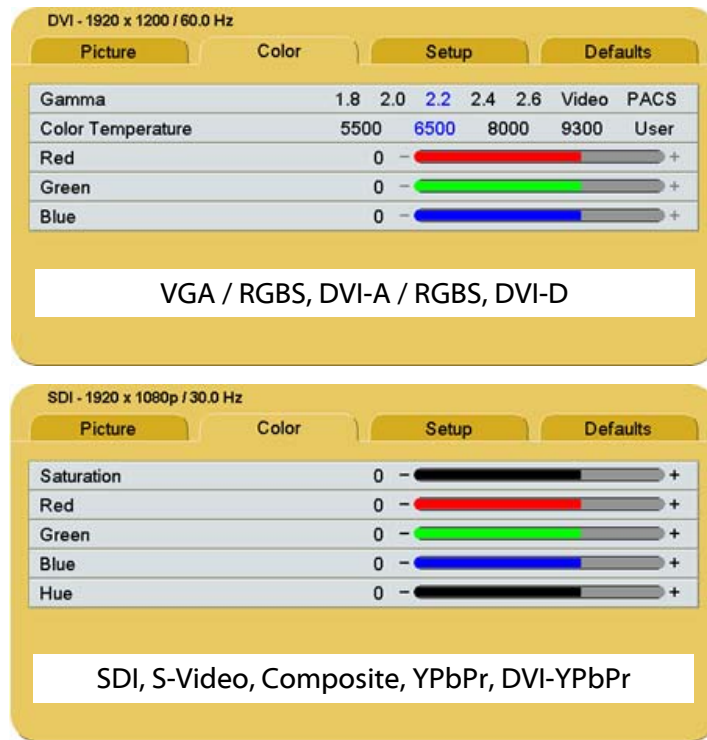
Scaling (Graphics)

This parameter is enabled when the input is graphics (computer) data.

Fill = Expands the video image to fill the entire screen. The aspect ratio may not be accurately displayed.

Aspect = Expands the video image until its largest dimension fills the screen. Image may be displayed with black bars on the top and bottom or the left and right. **1:1** = Displays the video data in its native size and aspect ratio. Image may be displayed with black bars on the top and bottom and on the left and right. Select using ◀ or ▶ buttons.

Color Menus



Gamma (for graphic mode, e.g. 1920 x 1200 / 60.0 Hz)

Press ◀ or ▶ to select a preset Gamma, Video or PACS

Notes:

1. Video is a color corrected Look Up Table (LUT) available with DVI and VGA.
2. Picture Archive Communications System (PACS) is a DICOM-like LUT available with DVI and VGA.

Saturation (for video mode, e.g. 1920 x 1080p / 30.0 Hz)

Press ◀ or ▶ to set the saturation (color intensity) of the image.

Red, Green, Blue (for both graphic & video mode)

Press the ◀ or ▶ button to increase or decrease the intensity of the selected color.

Hue (for video mode, e.g. 1920 x 1080p / 30.0 Hz)

Press ◀ or ▶ to set the hue (color tint) of the image.

Setup Menu



Menu Position

Places the menu in 1 of 9 predefined screen positions. Press the ◀ or ▶ button to select any of the 9 screen positions.

Language

Selects 1 of 19 languages: English, Deutsch, Francais, Italiano, Nederlands, Espanol, Dutch, etc. Press the ◀ or ▶ button to select any of the 19 languages.

DPMS Enable

Display Power Management System. When DPMS is enabled (on), and no input signal is present, an "Entering Power-Save Mode" message is displayed for 10 - 15 seconds, after which the display shuts down. This prolongs the life of the backlight tubes in the display. The display turns on when the input signal is restored. Press the ▶ button to enable DPMS, press the ▶ button to disable DPMS.

Auto Source Select

on = Searches through all possible input sources until an active video source is found. **off** = Video input is manually selected. Press the ◀ or ▶ button to disable or enable Auto Source Select.

Menu Lock

Disables access to menu system. This prevents inadvertent changes to the display's settings. To enable Menu Lock, press the ▶ button. MENU LOCKED is displayed when the ▶ button is pressed. To unlock, simultaneously press and hold the MENU and SCROLL buttons until MENU UNLOCKED is displayed.

Operating Hours: Backlight hours of operation.

BIOS: Version of the display's BIOS firmware.

Defaults Menu



Factory Defaults

Displays Restoring Factory Defaults message and returns all settings to their factory preset values. Press the SCROLL button to highlight Factory Defaults, then press the ► button.

User Defaults

Allows up to five customized user settings to be saved.

Setting User Defaults

1. Set the Picture, Color and Setup parameters to the user's preferences.
2. Select the Defaults tab.
3. Use the SCROLL button to select an available User Defaults. ***EMPTY*** appears in available User Defaults.
4. Press the ◀ to save the user's settings. The ***EMPTY*** message will be removed, see User Defaults 1 in the above OSM illustration.
5. Repeat steps 1 thru 4 for up to 5 users.

Restoring User Defaults

1. Select the User Defaults to be restored, then press the ► button .

Clearing User Defaults

1. Select the User Defaults to be cleared, then press the Brightness / Contrast button .

Note: The prompt at the bottom of the Defaults menu appears only when one of the User Defaults is selected.

Troubleshooting Section

Image Size is Very Large for the Screen

If the computer data does not appear to be the correct format, then SmartSync™ must be run. To run SmartSync™, press the Menu button. Select the Setup menu. Press SCROLL to highlight SmartSync™, then press the ◀ button. SmartSync™ will run and size the image properly.

Ghosting in Characters

Ghosting in characters is usually attributed to reflections in the video cable or source. Use a high quality coaxial cable and, if possible, lower the vertical refresh rate. Lower scan rates can help eliminate reflections. Unlike a CRT a flat-panel will not flicker at lower refresh rates (60 Hz is optimal) and data update will be the same at all refresh rates.

Text is Too Small

Since the monitor accepts and displays computer data with a higher resolution than the display's native resolution, this may produce small text. In the Menu check the Display Mode tab. Verify that the computer data resolution does not exceed the Native Resolution specification shown on page 16.

Character Jitter

If text characters seem to be "shaky" or bold, then Sharpness, Frequency and / or Phase may require adjusting. See: Setting Frequency, Phase and Sharpness below.

Character Noise and Vertical Distortion

The Frequency adjustment expands or contracts the horizontal size of the displayed image. The displayed image may be too wide or too narrow and vertical banding and pixel jitter may appear in grays and light colors. Adjust the Frequency until the image just fits the screen. Horizontal position adjustment can be used to verify that Frequency is set correctly. Line up the image on the left edge of the screen and then shift by one "click" to the right. The image should have one column off the screen on the right side if the Frequency is set correctly.

Black Screen

Power the display Off and On. If the NDS logo appears then the display is working properly. Check if the power management feature (DPMS) is enabled. A "Searching" message appears when the video source is not present or when an input source is out of the display's resolution range.

Setting Frequency, Phase and Sharpness

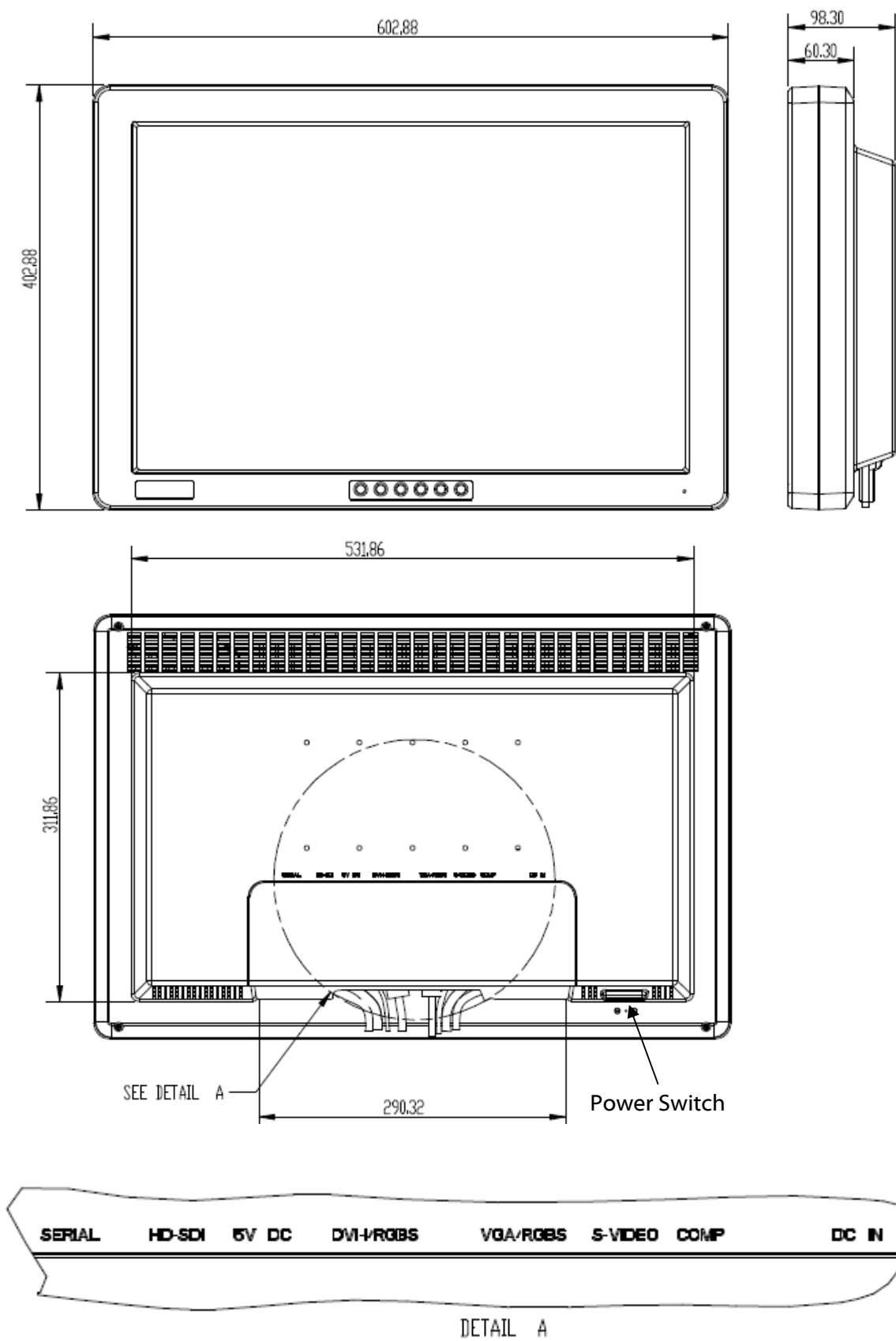
Windows Users: Open a WordPad document and set the font to Arial 8. Press the enter key to move the cursor to the middle of the page. Hold the shift and + keys down to create a line of +s.

If the + signs appear in groups of light or dark, then the Frequency is not correct. Press the MENU button to open the OSM, then SCROLL to the Frequency parameter. Press the ◀ or ▶ buttons to increase or decrease Frequency. There will be a point where all the + signs snap into focus and are the same intensity.


Phase and Sharpness are subtle adjustments and are best set using a display calibration program.

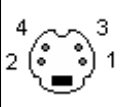
Drawing and Dimensions


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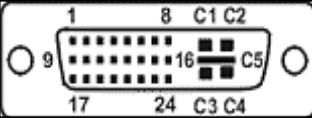


Data Connectors and Pin Outs

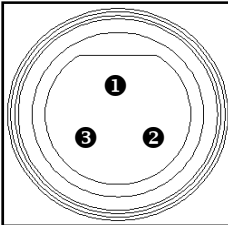
 VGA / RGBS / YPbPr		
1 RED	6 GND RED	11 ID0
2 GREEN	7 GND GREEN	12 ID1
3 BLUE	8 GND BLUE	13 HORIZ SYNC
4 ID2	9 N. C.	14 VERT SYNC.
5 GND	10 SYNC GND	15 ID3

 S-Video		
Pin	Name	Description
1	GND	Ground (Y)
2	GND	Ground (C)
3	Y	Intensity (Luminance)
4	C	Color (Chrominance)

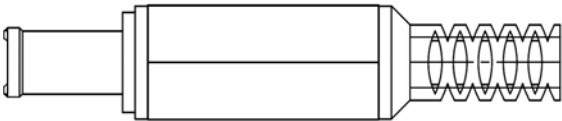
 Serial Control		
Pin	Name	Description
1	NC	No Connection
2	RXD	Flash Upgrade Receive Data
3	TXD	Flash Upgrade Transmit Data
4	NC	No Connection
5	GND	Ground
6	NC	No Connection
7	NC	No Connection
8	NC	No Connection
9	RXD	Flash Upgrade Receive Data

 DVI-I* Digital & Analog			
DVI-I supports digital and analog (RGBS/YPbPr). Analog data appear on pin 8 and pins, C1 through C5.			
* Compliant with DVI 1.0			
PIN#	SIGNAL	PIN#	SIGNAL
1	T.M.D.S. DATA 2-	16	HOT PLUG DETECT
2	T.M.D.S. DATA 2+	17	T.M.D.S. DATA 0-
3	T.M.D.S. DATA 2/4 SHIELD	18	T.M.D.S. DATA 0+
4	T.M.D.S. DATA 4-	19	T.M.D.S. DATA 0/5 SHIELD
5	T.M.D.S. DATA 4+	20	T.M.D.S. DATA 5-
6	DDC CLOCK	21	T.M.D.S. DATA 5+
7	DDC DATA	22	T.M.D.S. CLOCK SHIELD
8	ANALOG VERT. SYNC DVI 2 Only	23	T.M.D.S. CLOCK+
9	T.M.D.S. DATA 1-	24	T.M.D.S. CLOCK-
10	T.M.D.S. DATA 1+		RGBS & YPbPr (DVI)
11	T.M.D.S. DATA 1/3 SHIELD	C1	ANALOG RED
12	T.M.D.S. DATA 3-	C2	ANALOG GREEN
13	T.M.D.S. DATA 3+	C3	ANALOG BLUE
14	+5V POWER	C4	ANALOG HORIZ SYNC
15	GND	C5	ANALOG GROUND

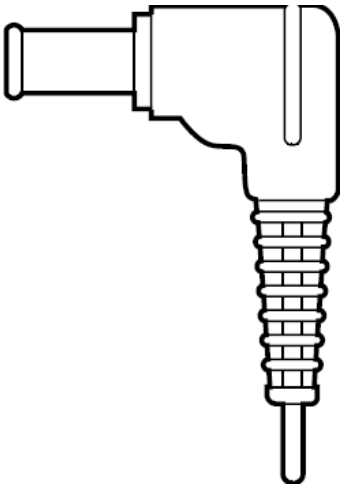
Power Connectors and Pin Out

	24 volt connector			
	Pin	1	2	3
		+ 24 VDC	GND	Shield

5 Volt Connectors



CUI P/N PP-015



SMK P/N LLP-0143

5 Volt Connector Wiring		
Connector	Center Pin	Shell
CUI P/N PP-015	+ 5 VDC	Return
SMK P/N LLP-0143	+ 5 VDC	Return

Specifications¹

Viewable Diagonal (inches)	24.0
Brightness² (cd/m², typical)	400
Native Resolution	1920 x 1200
Dot Pitch (mm)	.270
Vertical Viewing Angle	130°
Horizontal Viewing Angle	150°
Contrast Ratio (typical)	1300:1
VGA Input signal level at 75 Ohm	0.7 V p-p
HD-SDI Input signal level	0.8 to 2.0 V p-p
S-Video Input signal level	0.7 V p-p
Composite Input signal level	0.7 V p-p
RGBS Input signal level	0.7 V p-p
RGBS Input Sync level	0.4 to 4.0 V p-p
DC Power Consumption (nominal) ³	115W
AC Power Consumption (nominal) ³	125W
Display Weight	16.1 lbs (7.3 kg)
Environmental	
Operating Temperature	0 to 35°C
Operating Humidity (non condensing)	30 to 75%
Storage/Transport Temperature	-20 to 50°C
Storage/Transport Humidity (non condensing)	5-85%
Altitude, operating	0 - 3,000 meter
Altitude, non-operating	0 - 12,000 meter

Notes:

1. Specifications are subject to change without notice. Contact factory for current specifications.
2. Brightness shown is without a Touch Screen or A/R filter installed.
3. Applies to the SL Power Electronic Corp MW155RA2400F02 power supply provided with the display.
AC input: 100 to 240 Volts at 50 to 60 Hz.

Video and Graphics Inputs	Connector Type
HD-SDI / SDI	BNC, 75 Ohm terminated
S-video	DIN-4, 75 Ohm terminated
RGBS / YPbPr	DVI-A, 75 Ohm terminated
RGBS / YPbPr	HD-15, 75 Ohm terminated
Composite	BNC, 75 Ohm terminated
DVI	DVI-D
VGA	HD-15

Video Formats	Horiz. Freq (kHz)	Interlaced / Progressive	Aspect	Standard Digital/Analog
Serial Digital and Analog				
576/50i (PAL) SDI, Comp, S-video, RGBS, YPbPr	15.625	Interlaced	4:3	SMPTE 259M/C ITU 601
480/60i (NTSC) SDI, Comp, S-video, RGBS, YPbPr	15.734	Interlaced	4:3	SMPTE 259M/C ITU 601
576/50p RGBS, YPbPr, DVI	31.250	Progressive	4:3	ITU-R-BT1358
480/60p RGBS, YPbPr, DVI	31.469	Progressive	4:3	SMPTE 293M
720/50p RGBS, YPbPr, HD-SDI, DVI	37.500	Progressive	16:9	SMPTE 292M, SMPTE 296M
720/60p RGBS, YPbPr, HD-SDI, DVI	45.000	Progressive	16:9	SMPTE 296M, SMPTE 292M
1080/50i RGBS, YPbPr, HD-SDI, DVI	28.125	Interlaced	16:9	SMPTE 274M, SMPTE 292M
1080/60i RGBS, YPbPr, HD-SDI, DVI	33.750	Interlaced	16:9	SMPTE 274M, SMPTE 292M
1080/50p RGBS, YpPr, HD-SDI, DVI	56.200	Progressive	16:9	SMPTE 274M
1080/60p RGBS, YPbPr, HD-SDI, DVI	67.300	Progressive	16:9	SMPTE 274M

Cleaning Instructions



We recommend turning the display off prior to cleaning.

Follow your organization's protocol for the handling of blood and body fluids. Clean the display with a diluted mixture of mild detergent and water. Use a soft towel or swab. Use of certain cleaning agents may cause degradation to the plastic enclosure and labels of the product. The plastic is ABS. Consult the cleanser manufacturer to see if the agent used is compatible with ABS. Do not allow liquid to enter the display.

Applications / Supported Devices

Fully compliant for medical use in surgery, the EndoVue™ widescreen from NDSsi offers a high quality, low-cost solution for surgical imaging environments. Its compact and lightweight design makes it very maneuverable and easy to install on a surgical cart or boom arm. The new EndoVue™ is an affordable alternative to a full-featured surgical display but can still accommodate high-definition signals from a variety of medical imaging sources, including endoscopes, ultrasound, PACS, and vital signs. It also features a fanless cooling design to minimize the risk of spreading airborne contaminants near the sterile field.

SOURCE

- DVI, HD-SDI
- HD-RGBS, HD-YPbPr
- RGBS, YPbPr, SDI
- S-Video, Composite
- VGA

APPLICATION

- HD Endoscopy, PACS, Vital Signs, Room Camera
- HD Endoscopy
- SD Endoscopy
- Fluoroscopy, SD Endoscopy, Ultrasound
- PACS, Endoscopy, Ultrasound, Angiography

Safety Precautions, Classification, Product Disposal

Safety Precautions

- To prevent the risk of electric shock, make sure power cord is unplugged from wall socket. To fully disengage the power to the unit, please disconnect the power cord from the ac outlet.
- Grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle marked "Hospital Only" or "Hospital Grade".
- The signal input parts or signal output parts (SIP/SOP) need to be connected properly and any unused SIP/SOP shall not be accessible to unqualified personnel after the LCD is integrated into a medical system.

Classification

- Power by Class I power Adapter.
- No Applied Part.
- Ingress Protection: IPX0 (Front side can meet IP32 (3: opening size, minor dim. $\leq 2.5\text{mm}$; 2: dripping water (front only), $\pm 15^\circ$ from vertical))
- Mode of operation: Continuous Operation
- The equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide: Not AP or APG Category.

Product Disposal



- Outside the European Union - If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union:
EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

VESA Mounting

Install VESA Mounting

The LCD display provides standard VESA (100mm) mounting allowing the display to be conveniently integrated a system. Installation should be performed by a qualified technician. Please contact your provider's service department if you require assistance installing the display.

VESA mounting dimension diagram (100 x 100 mm)

Installation instructions follow:

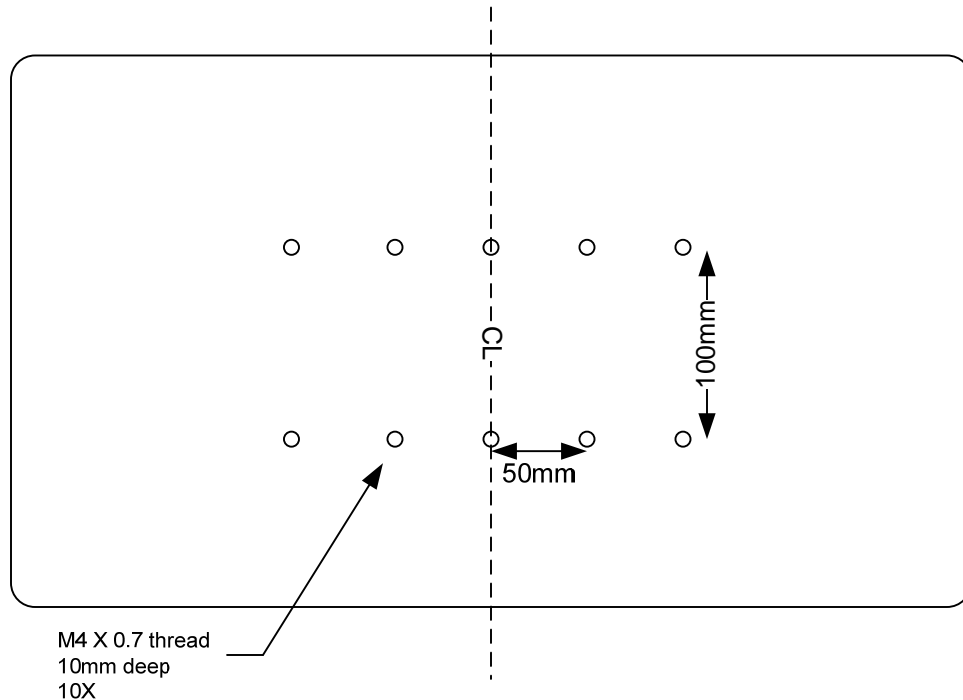
The wall-mounting attachment is comprised of one mounting bracket and screws.

Attach the mounting bracket to the rear cover of the LCD display using the provided (M4 type) screws.



The mounting bracket must be securely tightened. Failure to properly secure the display to the mounting bracket could be hazardous.

Monitor Mounting Detail



Notes

Notes

Notes



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